

In Re: App. No. 09/358,280
Response to Final Office Action of 10-28-05
Docket No. 6030-021 (formerly MISTY-52064)
Customer No. 29,335

Amendments to the Specification

Please amend the specification, by deleting Figures 3-8. Applicant has submitted a replacement Sheet without Figures 3-8.

Please amend the "Brief Description of the Figures" on page 3 as follows:

Figure 1 is a perspective partial cross sectional view of the misting apparatus of the present invention.

Figure 2 is a partial cross sectional view of the[[r]] pump and cap assembly.

~~Figure 3 is a perspective partial cross sectional view of the misting apparatus of the present invention.~~

~~Figure 4 is a side elevational cross sectional view of a quick connect coupling for removing and re-coupling a spray nozzle attachment of the present invention.~~

~~Figure 5 is a plan view of a freely rotatable spray nozzle attachment in accordance with the present invention.~~

~~Figure 6 is a perspective partial cut away view of a preferred embodiment of the present invention.~~

~~Figure 7 is a side elevational view of another preferred embodiment of the present invention.~~

~~Figure 8 is a side view of another preferred embodiment of the invention.~~

Please Amend "Description of the Preferred Embodiments" on pages 3-4 as follows:

~~With reference to accompanying Figures 3-8, in which like structural and functional features are identified by like reference numerals, there is disclosed the misting apparatus 10 of the present invention. With particular reference to FIG. 3, misting apparatus 10 consists generally of a fluid tank 12, a flow valve 22 coupled to a fluid outlet 20 of the tank, a quick connect coupling consisting of male fitting 24 coupled to the fluid outlet 20~~

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and female fitting 26 which rapidly couples and decouples a spray nozzle attachment 28 to the male fitting

Fluid tank 12 defines an inner fluid chamber 18 having a fluid outlet 20. A pressurizable gas chamber 14 is defined within inner fluid chamber 18, and communicates with a gas valve 16, such as a SCHRAEDER valve, for introducing a gas, under pressure, into the pressurizable gas chamber 14. According to the present invention, it is desirable to employ a resilient bladder 15 to define either the gas chamber 14, as illustrated by FIG. 3, or as the fluid chamber 18.

It will be understood, by those skilled in the art, that pressurization of gas chamber 14 creates a static pressure within gas chamber 14 and a pressure differential between gas chamber and empty fluid chamber 18. Introduction of a fluid into fluid chamber 18, under pressure which exceeds that of the pressure within gas chamber 14 will cause compression of gas chamber 14 by the fluid filling fluid chamber 18 until a steady state pressure equilibrium exists between the fluid pressure within fluid chamber 18 and the gas pressure within gas chamber 14.

Thus, it will be understood, for example, if the gas pressure within gas chamber 14 is 50 p.s.i. and fluid is introduced into fluid chamber 18 at a pressure greater than 50 p.s.i., the fluid will fill the fluid chamber 18, thereby compressing gas chamber 14 until a steady state pressure equilibrium between the chamber is achieved. At that equilibrium point, no further fluid may be introduced, except at elevated pressure. At equilibrium, such as occurs when valve 22 is closed, the compressive forces of the fluid equal the expansive forces of the gas. When valve 22 is opened, the fluid is immediately exposed to the ambient pressure and the expansive forces of the gas within gas chamber 14 propel the fluid from fluid chamber 18 into fluid outlet 20 and out of tank

A quick-connect coupling, consisting of a male fitting 24 and a female fitting 26, is provided to permit easy coupling and decoupling of spray nozzle attachment 28 and

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~~refilling of tank by attachment to any source of pressurized water, such as an external hose bib. According to another embodiment of the invention, there is provided an alternate coupling consisting of an external threaded end and an internal threaded end which operably couples the flow regulator valve 22 to conduit 27. It is desirable, though not required, to interdispose a swivel coupling between the external threaded end and internal threaded end to permit free rotation of the entire spray nozzle assembly. Conduit 27 may be any type of tubing or hose which conducts the fluid flow from flow regulator valve 22 to spray nozzle~~

~~It is desirable, according to one preferred embodiment of the invention, to utilize fluid outlet 20 and flow regulator valve both to control the flow of fluid out of tank 12 and introduction of fluid into tank 12. Introduction of pressurized fluid into tank 12 requires either an additional female fitting 26 which may be coupled, at one end, to a hose bib and then coupled to male fitting 24 or a suitable adapter for directly coupling valve 24 to a hose bib or other pressurized fluid source.~~

~~Spray nozzle attachment 28 may consist of a variety of different attachments, such as, for example, a spray nozzle, a flexible tube terminating in a spray nozzle, a telescoping tube terminating in a spray nozzle or a freely rotating directional nozzle 44 in FIG. 5, capable of emitting a multi-directional spray. It will also be understood, by those skilled in the art, that a plurality of spray nozzles may also be employed.~~

~~In accordance with an alternative preferred embodiment of the invention, as illustrated with reference to FIG. 6, there is shown a backpack-like misting apparatus 40 in accordance with the present invention. Misting apparatus 40 consists of an outer shell 42 having shoulder straps 46 to facilitate carrying by a person. Disposed within outer shell 42 is a fluid tank 12 substantially as described above. In this preferred embodiment of the invention, however, flow regulator valve 22 preferably consists of a three-way valve coupled at one end to tank 12 and capable of opening either to spray nozzles 44 for emitting a misting spray or to an external coupling 48 for coupling to a pressurized water~~

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~~source for introduction of fluid into tank 12. Flow regulator valve 22, therefore, activates the spray from spray nozzles 44, opens the external coupling 48 for introduction of fluid into tank 12 or is closed. An air valve 16 extends through outer shell 42 and communicates with the gas chamber (not shown) within tank 12 to pressurize the gas chamber.~~

Finally, there is contemplated another preferred embodiment which is illustrated in FIG. 7 consisting of a self-standing misting apparatus 50 which employs like features and function as the misting apparatus 10 and 40 depicted in FIGS. 3 and 6, respectively. Misting apparatus 50 consists of an outer shell which may be self-supporting, containing a fluid tank 12 and the associated flow regulator valve 22 and air valve 16 which communicate between the outer shell 52 and the fluid tank 12 as hereinbefore described. The quick connect coupling 24, 26 is preferably provided external to the outer shell 52, but depending upon specific design considerations, may be incorporated within outer shell 52. A stem 54 communicates between quick connect coupling 24, 26 and spray nozzle 28 to conduct pressurized fluid from fluid tank 12 to spray nozzle 28. Again, it will be understood by those skilled in the art, that stem 54 may consists of flexible tubing, rigid tubing, telescoping tubing or such other fluid conduit as may be appropriate for the desired end use of the misting apparatus 50.